

Customer No.: 31561  
Application No.: 10/710,578  
Docket NO.: 12975-US-PA

### REMARKS

#### Present Status of the Application

The Office Action rejected claims 1-3, 5-11, 13-15, 17 and 18. Specifically, the Office Action rejected claims 1-3, 5-11, 13-15, 17 and 18 under 35 U.S.C. 102(e), as being anticipated by Minami et al. (U.S. 6,607,381). The Office Action also stated that "claims 4, 12 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims". Applicants believe that claims 1-3, 5-11, 13-15, 17 and 18 are already distinguished over the cited art. For the reasons set forth below, Applicants respectfully request a reconsideration of the present invention as a whole.

#### Summary of Applicant's Invention

The Applicants' invention is directed to a heat insulation pedestal used in a vertical type furnace tube. The heat insulation pedestal for a furnace tube according to the Applicants' invention comprises a top support having an annular base and a reinforced structure, a plurality of heat insulation plates set up under the top support and a plurality of connection sections connecting various heat insulation plates and the top support with one of the heat insulation plates. It should be noticed that the reinforced structure and the annular base are joined together such that the top support has a

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structural strength greater than the annular base. Because of a reinforced structure added to form a 'drum shape' or a 'cylinder shape' top support, the heat insulation pedestal is strengthened to reduce the amount of deformation and deformation-caused transport problems. Scrap material can be used to form the structural reinforcement to reduce overall production cost. Because the frequency of pedestal replacement is reduced when the top support is reinforced, overall productivity is increased while production time is reduced.

#### Discussion of Office Action Rejections

The Office Action rejected the claims 1-3, 5-11, 13-15, 17 and 18 under 35 U.S.C. § 102(e) as being anticipated by Minami et al. (U.S. 6,607,381) and stated that

*Minami et al. discloses a heat insulation pedestal (1) having an annular base (20) and a reinforced structure (15) integrally formed (SEE Figure 9A & 27), a plurality of heat insulation plates (7) and a plurality of connection sections (28) connecting the various heat insulation plates; the heat insulation plate, support and connection sections are all cut from opaque quartz glass. The cylindrical shape of the base with the reinforced structure together can form a drum shape support. It is acknowledged by the Examiner that it is well known in the art for the furnace structure to include inner and outer tubes as shown for example in Figures 35 & 47 and also to include a wafer boat holder positioned between the wafer boat (4) and pedestal.*

Applicants respectfully traverse this rejection and believe that claims 1-3, 5-11, 13-15, 17 and 18 are distinguished over the cited references. As stated above, claim 1 and 9 recite:

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*1. An heat insulation pedestal for a furnace tube, comprising:  
a top support having an annular base and a reinforced structure, wherein the reinforced structure and the annular base are joined together such that the top support has a structural strength greater than the annular base;  
a plurality of heat insulation plates set up under the top support; and  
a plurality of connection sections connecting various heat insulation plates and the top support with one of the heat insulation plates.*

*9. A vertical type furnace tube, comprising:*

*.....  
a heat insulation pedestal set up inside the inner tube under the wafer boat, wherein the heat insulation pedestal further comprises:  
a top support for supporting the wafer boat, wherein the top support comprises an annular base and a reinforced structure joined together such that the top support has an overall structural strength greater than the annular base;  
a plurality of heat insulation plates set up under the top support; and  
a plurality of connection sections connecting various heat insulation plates and the top support to one of the heat insulation plates.*

*(Emphasis added).* Applicants assert that claims 1 and 9 patently define over the cited art for at least the reason that the cited art fails to disclose at least the features emphasized above.

In the present invention, Applicants further emphasize that the top support is located on the heat insulating equipment constructed by a plurality of heat insulating plates. Therefore, it is obvious that the top support is only located on the top heat insulating plates and is not inserted between the heat insulating plates.

However, in the cited art, Minami et al. never mention and teach to dispose a top

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support on the insulator means constructed by insulation plates. They disclose an auxiliary heat-insulating jig 1 having plate insulators 7. They teach that since the plate insulators 7 of the auxiliary heat-insulating jig 1 are thermally deformed or reduced in mechanical strength, a reinforcing part 15 is radially formed on each plate insulator 7 as shown in Figs. 9A and 9B (coln. 10, lines 49-54). They further mention that since the plate insulator 7 is formed together with the reinforcing part 15, it can be improved in strength against bending or resistance against thermal deformation by adjusting the angle structure of the reinforcing part 15 (col. 10, lines 62-65). More specifically, the reinforcing part 15 is formed to prevent individual plate insulator 7 from deformation. Besides, plate insulators 7 are placed between the bottom plate 8 and the top plate 8 and all of them are stacked and engaged by vertically supports 6. It is clearly that there is no top support placed on the top of the auxiliary heat-insulating jig 1. Moreover, Minami et al. fail to teach or imply to dispose a top support to reinforce the structure strength of the auxiliary heat-insulating jig 1.

Nevertheless, in the present invention, Applicants disclose a top support 410 which is placed on the top of insulator means constructed by the insulation plates 404 to improve the structure strength of the heat insulation pedestal 308 (as shown in Figs. 4A, 4B and 5). Hence, the top support 410 is used to protect the heat insulation pedestal as a whole from deformation. Therefore, Applicants believe that the present invention is distinguished from what disclosed by Minami et al.. Moreover, Minami et al. not only lack to disclose what the Applicants emphasize but also do not imply to form

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a top support to improve the structure strength of the heat insulation pedestal. Therefore, people skilled in the art will not modify the cited art to achieve the advantages of the present invention.

For at least the foregoing reasons, Applicant respectfully submits that independent claims 1 and 9 patently define over the prior art references, and should be allowed. For at least the same reasons, dependent claims 2-3, 5-8, 10-11, 13-15, 17 and 18 patently define over the prior art as well.

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### CONCLUSION

For at least the foregoing reasons, it is believed that the pending claims 1-18 are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Respectfully submitted,

Date :

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